

CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- Before this Amendment: Claims 1-4, 6-17, 19-21 and 23-29.
- After this Amendment: Claims 1-4, 8-12, 14-17, 19-21, 23, 26-29 and 35.

Canceled claims: Claims 6-7, 13 and 24-25.

Amended claims: Claims 1, 3, 8-9, 12, 14, 19, 21, 26 and 29.

New claims: Claim 35.

Claims:

1. **(Currently Amended)** An imager comprising:

[[a))] a photosensitive surface;

[[b))] a light source which produces at least one scanning light beam;

[[c))] a deflector, arranged to deflect the at least one scanning light beam onto the photosensitive surface;

[[d))] a sensor which measures the orientation of the deflector;

[[e))] a controller operative to determine a placement error of [[said]] the at least one scanning beam on the photosensitive surface, responsive to the orientation measurement by the sensor; and

[[f))] responsive to the displacement error, an actuator, ~~responsive to the displacement error, and~~ arranged to change the direction of deflection of the at least one light beam by the deflector,

wherein:

the sensor is an optical sensor configured to measure the orientation of the deflector substantially at a null in a vibrational mode of the deflector; and

the sensor comprises:

a second light source which produces a second light beam;

a second deflector, fixed to the deflector or a support of the deflector, which deflects the second light beam; and

an optical position sensor which measures a position of the deflected second light beam.

2. (Original) An imager according to claim 1 wherein the photosensitive surface is a moving surface.

3. (Currently Amended) An imager according to claim 2 wherein the controller determines [[said]] the placement error relative to a desired position of [[said]] the photosensitive surface.

4. (Previously Presented) An imager according to claim 2, wherein the moving photosensitive surface comprises the surface of a rotating cylinder.

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Currently Amended) An imager according to claim 1~~claim 7~~, wherein the second light source comprises a laser, and the second light beam strikes a surface of the optical position sensor at an oblique angle, thereby avoiding reflection of the second light beam from the optical position sensor back into the laser.

9. (Currently Amended) An imager according to claim 1, wherein the vibrational mode is ~~[[the]]~~ a lowest frequency vibrational mode of the deflector.

10. (Previously Presented) An imager according to claim 9, wherein the vibrational mode is a torsional mode.

11. (Previously Presented) An imager according to claim 1, wherein the null is substantially at the center of the deflector in the scan direction.

12. (Currently Amended) An imager according to claim 1 wherein the deflection of the at least one scanning light beam is controlled in a closed loop control system, utilizing ~~[[said]]~~ the sensor measurement as a feedback signal.

13. (Canceled)

14. (Currently Amended) An imager according to claim 1, wherein the actuator is attached to at least one end of the deflector in the scan direction, and rotates the deflector around an axis substantially parallel to the scan direction, ~~and where the sensor measures the orientation of the deflector.~~

15. (Previously Presented) An imager according to claim 1 wherein the deflector is a mirror.

16. (Previously Presented) An imager according to claim 1 wherein the deflector is a prism.

17. (Previously Presented) An imager according claim 1 wherein the imager is a printer or copier.

18. (Canceled)

19. (Currently Amended) A method of producing an image on a photosensitive surface in an imager, wherein a cross-scan position of a scan line with respect to the photosensitive surface may vary from an expected position, the method comprising:

[[a)]] deflecting a scanning light beam, utilizing a deflector, such that the deflected scanning light beam falls on the photosensitive surface, thereby producing a plurality of lines of the image;

[[c)]] changing the orientation of the deflector, to correct an error in the cross-scan position of the lines on the photosensitive surface, caused by [[said]] a variation;

[[d)]] measuring the orientation of the deflector using an optical sensor; and

[[e)]] controlling [[the]] a change in the orientation of the deflector in response to ~~the measurement of~~ measuring the orientation of the deflector,

wherein:

~~the measurement of~~ measuring the orientation of the deflector is made at a location on the deflector in the vicinity of a null of a vibrational mode of the deflector; and

the measuring comprises:

reflecting a second light beam from a second deflector fixed to the deflector or to a support of the deflector; and

measuring a position of the reflected second light beam.

20. (Original) A method according to claim 19 wherein the photosensitive surface is a moving surface.

21. (Currently Amended) A method according to claim 20, also including:
[[a)] measuring [[the]] a position of the photosensitive surface; and
[[b)] finding a difference between the measured position or orientation and an expected position or orientation;

wherein changing the orientation of the deflector comprises changing the orientation by an amount and in a direction which depends on [[said]] the difference.

22. (Canceled)

23. (Previously Presented) A method according to claim 20, wherein the moving photosensitive surface comprises the surface of a moving belt.

24. (Canceled)

25. (Canceled)

26. (Currently Amended) A method according to claim 19, wherein the vibrational mode is [[the]] a lowest frequency vibrational mode.

27. (Previously Presented) A method according to claim 26, wherein the vibrational mode is a torsional mode.

28. (Previously Presented) A method according to claim 19, wherein the null is substantially at the center of the deflector in the scan direction.

29. (Currently Amended) A method according claim 19 wherein the deflection of the ~~at least one~~ scanning light beam is controlled in a closed loop control system, utilizing ~~[[said]]~~ a measurement of deflection as feedback signal.

30. – 34. (Canceled)

35. (New) An imager comprising:

- a photosensitive surface;
 - a light source which produces at least one scanning light beam;
 - a deflector, arranged to deflect the at least one scanning light beam on to the photosensitive surface;
 - a sensor which measures the orientation of the deflector;
 - a controller operative to determine a placement error of the at least one scanning beam on the photosensitive surface, responsive to the orientation measurement by the sensor; and
 - responsive to the displacement error, an actuator arranged to change the direction of deflection of the at least one light beam by the deflector,
- wherein:
- the sensor is configured to measure the orientation of the deflector substantially at a null in a vibrational mode of the deflector; and
 - the sensor comprises:
 - a second light source which produces a second light beam;

a second deflector, fixed to the deflector or a support of the deflector, which deflects the second light beam; and

a second sensor which measures a position of the deflected second light beam.